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**CLOSURE PLAN - "INTERIM CLOSURE"**  
**U. S. DEPARTMENT OF ENERGY FEED**  
**MATERIALS PRODUCTION CENTER**  
**OH6890008976, 05-31-0681**

06/29/88



State of Ohio Environmental Protection Agency

P.O. Box 1049, 1800 WaterMark Dr.  
Columbus, Ohio 43266-0149

2647



Richard F. Celeste  
Governor

**CERTIFIED MAIL**

June 29, 1988

Re: CLOSURE PLAN - "INTERIM CLOSURE"  
U.S. DEPARTMENT OF ENERGY  
FEED MATERIALS PRODUCTION CENTER  
OH6890008976, 05-31-0681

Mr. James A. Reafsnyder, Site Manager  
Oak Ridge Operations  
U.S. Department of Energy  
P.O. Box E  
Oak Ridge, Tennessee 37831

Dear Mr. Reafsnyder:

On September 28, 1987, U.S. DOE Feed Materials Production Center (USDOE-FMPC) submitted to Ohio EPA a closure plan for waste pit #4 located at 7400 Willey Road, Fernald, Ohio. Revisions to the closure plan were received on May 4, 1988. The closure plan was submitted pursuant to Rule 3745-66-12 of the Ohio Administrative Code (OAC) in order to demonstrate that USDOE-FMPC's proposal for closure complies with the requirements of OAC Rules 3745-66-11 and 3745-66-12.

The public was given the opportunity to submit written comments regarding the closure plan of USDOE-FMPC in accordance with OAC Rule 3745-66-12. No comments were received by Ohio EPA in this matter.

Based upon review of the company's submittal and subsequent revisions, I conclude that the closure plan for the hazardous waste facility at USDOE-FMPC meets the performance standard contained in OAC Rule 3745-66-11 and complies with the pertinent parts of OAC Rule 3745-66-12.

The closure plan submitted to Ohio EPA by USDOE-FMPC is hereby approved with the following modifications:

1. The Feed Materials Production Center shall use a minimum of three (3) feet of clay compacted in six (6) inch lifts to a permeability of no greater than  $10^{-7}$  cm/sec for the initial layer of the interim cap over waste pit #4.

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By Mary Carr Date 6-29-88

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2. The facility is currently using clay compacted to  $10^{-7}$  cm/sec. The facility shall present more information about the permeability tests (i.e., how are they performed and how often are they performed?). Also, the facility shall confirm, with Kim McGuire of the Ohio EPA, Southwest District Office (SWDO), the correctness of the testing procedure and calculations.
3. The facility shall specify the type of equipment used to compact the soil and the procedures used for compaction.
4. The pit is said to be lined with 12" of blue clay which is stated to have a permeability of  $10^{-7}$  ft/min. The facility shall specify the method used to determine this permeability value and the depth at which this layer is found.
5. The facility shall specify the parameters to be analyzed during equipment decontamination. Sample parameters shall reflect the wastes found in pit #4. Sampling and analysis shall follow the procedures outlined in USEPA publication SW-846. Additionally, Feed Materials Production Center shall provide a secure area for equipment and personnel decontamination on the closure site. The current plan calls for an unacceptable amount of travel for vehicles and personnel prior to decontamination. A new area shall be proposed to Ohio EPA which minimizes travel distance.
6. Exposure of the flexible membrane liner (FML) to the elements (wind, sunlight, rain, animal life, etc.) is unacceptable. The Feed Materials Production Center shall install a drainage layer (i.e., geonet or sand with a permeability of at least  $10^{-2}$  cm/sec) above the FML and cover the drainage layer with filter fabric (to prevent movement of fine particles into the drainage area) and then soil. The facility shall also provide information regarding control of surface runoff and runoff from the drainage layer itself. The facility shall also provide plans depicting drainage control structures and their relative location. Additionally, the facility shall provide the hydraulic calculations used to design the drainage system.
7. The Feed Materials Production Center shall specify the thickness of the FML to be no less than 30 mils.
8. The Feed Materials Production Center shall provide Ohio EPA with erosion rate calculations, settlement and subsidence calculations, and stability analysis for the side slopes of the interim cover. The facility shall also specify the volume of clay and soils needed to cover the landfill and demonstrate that there is enough clay and soil of acceptable quality available on-site to complete the "interim" cover.
9. The facility shall provide detailed information on the maintenance and repair of the final cover and drainage system.

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By: Mary Cassi Date 6-29-88

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10. The independent engineer shall be present during all critical closure activities such as, but not limited to, soil sampling of the cover material, synthetic liner installation, placement and compaction of the cover material, construction quality checks and seeding.
11. The closure plan shall be modified to say that Kim McGuire of the Ohio EPA, SWDO, will be notified seven (7) days prior to the beginning of any and all of the critical closure activities mentioned above.
12. The Feed Materials Production Center shall specify that the closure process will be accomplished in two (2) phases, "interim" and "final." Interim closure is the topic of discussion for this approval letter. The "interim" closure cover shall be completed prior to December 1, 1988.
13. Within ninety (90) days after the receipt of the Record of Decision (ROD) from the Remedial Investigation Feasibility Study (RI/FS), Feed Materials Production Center shall submit a plan for "final" closure of waste pit #4. Ohio EPA reserves the right to review and modify or grant approval to the "final" closure plan.
14. The description of the groundwater monitoring program lacks detail. Specifically, parameter monitoring shall be outlined. The Characterization Investigation Study was to have described the wastes presently in pit #4. Once this study becomes available, the parameters for groundwater monitoring shall be specified to include those wastes found in the pit. Additionally, existing and proposed downgradient well clusters shall be scrutinized once for Appendix IX parameters. Sample collection preservation, shipment, analytical procedures used, and the chain of custody control shall all be provided according to OAC 3745-65-92.
15. As of November 1987, FMPC submitted a groundwater quality assessment program plan for Waste Pit #4 resulting from their indicator evaluation program. Indications were that the groundwater was contaminated (statistical evaluation showed significant elevated specific conductance in downgradient wells) within the sand/gravel aquifer. Therefore quarterly groundwater sampling shall continue according to OAC 3745-65-93(D)(7).
16. FMPC shall continue to work with Ohio EPA on the following groundwater monitoring points for waste pit #4 until such issues are resolved.
  - a. Which of the existing RCRA wells are to be used to assess contamination emanating from pit #4? Which of the proposed wells, including those used in the RI/FS, are to be used to address contamination from pit #4?

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- b. During well development a minimum extraction of 3-5 well volumes is recommended.
  - c. The "blue clay" layer in the soil profile shall be better defined. FMPC mentions that pit #4 is naturally lined with "blue clay," however, the soil profiles for the nearby monitoring wells indicate no such layer at a 25' to 30' depth. The "blue clay" layer is approximately 125' deep according to soil boring #19 (Appendix 1 of closure plan). The 25'-30' depth consists of olive gray silty clay with 2% gravel (boring #19) or light olive gray silty gravel (boring #21), or light olive gray silty clay stiff and dry, less than 1% gravel. Should the "blue clay" be like those soils just described, there may be a leakage problem through this layer due to the gravel content. Without adequate, verifiable evidence of this "blue clay" liner, it will be unlikely that Ohio EPA would approve an "in place" closure of waste pit #4.
  - d. Specify the seasonal water table fluctuation and the thickness of each water bearing zone.
  - e. Well screens for 100 series wells are entirely below the level of the till layer they are to monitor. This screen location is not acceptable. The 100 series well screens shall be moved upward in order to monitor the till layer. Additionally, a 15 foot well screen is too large for any of the proposed wells. The screen should span the water bearing zone with a maximum length of 10 feet. Additional descriptions and drawings of well installation techniques is needed to clarify well screen positioning and to ensure proper monitoring of each water-bearing zone.
17. The Feed Materials Production Center shall submit all items requested in this "interim" closure approval for waste pit #4 to Ohio EPA within thirty (30) days of the receipt of this letter unless specified differently in earlier conditions [e.g. submit plan for "final" closure ninety (90) days after receiving RI/FS].

Please be advised that approval of this closure plan does not release USDOE-FMPC from any responsibilities as required under the Hazardous and Solid Waste Amendments of 1984 regarding corrective action for all releases of hazardous waste or constituents from any solid waste management unit, regardless of the time at which waste was placed in the unit.

Due to the fact that the Ohio EPA is not currently authorized to conduct the federal hazardous waste program in Ohio, your closure plan also must be reviewed and approved by USEPA. Federal RCRA closure regulations (40 CFR 265.112) require that you submit a closure plan to George Hamper, Chief, Waste

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By: Mary Cavin Date: 6-29-88

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Management Division, Technical Programs Section, Ohio Unit, USEPA, Region V, SHS-13, 230 South Dearborn Street, Chicago, Illinois 60604. Approval by both agencies is necessary prior to commencement of activities required by the approved closure plan. If closure activities will, of necessity, take longer than 180 days to complete in order to allow for a period of time for review and approval by USEPA, a longer closure period is hereby approved pursuant to OAC rule 3745-66-13(B) provided USDOE-FMPC shall commence closure upon receipt of this approval by Ohio EPA or upon receipt of approval by USEPA, whichever occurs later. The closure period shall not exceed 180 days beyond the latter approval.

You are notified that this action of the Director is final and may be appealed to the Environmental Board of Review pursuant to Section 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. It must be filed with the Environmental Board of Review within thirty (30) days after notice of the Director's action. A copy of the appeal must be served on the Director of the Ohio Environmental Protection Agency and the Environmental Enforcement Section of the Office of the Attorney General within three (3) days of filing with the Board. An appeal may be filed with the Environmental Board of Review at the following address: Environmental Board of Review, 236 East Town Street, Room 300, Columbus, Ohio 43266-0557.

When closure is completed, the Ohio Administrative Code Rule 3745-66-15 requires the owner or operator of a facility to submit to the Director of the Ohio EPA certification by the owner or operator and a registered professional engineer that the facility has been closed in accordance with the approved closure plan. The certification by the owner or operator shall include the statement found in OAC 3745-50-42(D). These certifications should be submitted to: Richard L. Shank, Director, Ohio Environmental Protection Agency, Attn: Thomas Crepeau, Program Planning and Management Section, Division of Solid and Hazardous Waste Management, P.O. Box 1049, Columbus, Ohio 43266-0149.

Sincerely,



Richard L. Shank, Ph.D.  
Director

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By: Mary Cavin Date 6-29-88

RLS/PLV/ara

cc: DSHWM Central File, Ohio EPA  
Rebecca Strom, USEPA, Region V  
Tim Poff, FMPC (Fernald)

Don Marshall, SWDO, Ohio EPA  
Paul Vandermeer, DSHWM, Ohio EPA  
Ghassan Khaled, DSHWM, Ohio EPA

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